

## Mendelian Genetics

**Monohybrid** problems deal with only **1 trait**. For example, a trait may be "color" or "height". **Dominant** genes are represented by capital letters (**T**) while **recessive** genes are represented by lowercase letters (**t**).

Mendel stated that traits are either **DOMINANT** or **RECESSIVE**. There are No blended traits.

- ❖ Genotypes can be: (TT), (tt), (Tt)
- ❖ Example: Albinism (recessive), Cystic fibrosis (recessive), Sickle cell anemia (recessive), Tay-Sachs disease (recessive), Huntington's disease (dominant)

**But Genetics is more complicated than Mendelian Genetics.**

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### Drag and Drop Mendelian Genetics Practice Monohybrid Punnett Squares

**Directions:** You may use pen/paper to assist you with solving problems.

1. Drag & Drop the **(P1)** genes into the **CROSS** box to create the genetic cross. Place the Parent **(P1)** genes on both sides of the "x" symbol.
2. Set up Punnett square: Drag & Drop the **(P1)** genes to Top Parent now you are ready to Drag & Drop the remaining **(P1)** genes to Side Parent.
3. Drag & Drop **(F1)** genes to fill in the Offspring boxes. There may be genes left over.
4. Answers are **SPECIFIC** – If drag & drop Allele doesn't match correctly you will not be Able to Drag & Drop it there. Keep trying. Once you find the correct match alleles will drop in box. **Good luck!**
5. **Solve the questions in the bottom box. For percent answers, include the percent sign with no space after the numbers (ie.75%). For word answers, use all small letters (ie. yes).**

**Practice Problem 1: Monohybrid** - Cross a heterozygous tall plant x heterozygous tall plant. (T = tall, t = dwarf).

Drag & Drop ONE allele per Cross Box.

P1    T    T    t    t

Cross:   

P1    T    T    t    t  
F1    TT    Tt  
      tt    Tt

Punnett Square:

	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>

Q1. What percent of the offspring are homozygous dwarf plants?

Q2. What percent of the offspring are heterozygous tall plants?

**Problem 2: Monohybrid – Red eyes are dominant over pink-eyes.**

**Question:** What will the offspring look like if you mate a **Homozygous dominant** red-eye fly and a pink-eye fly. (R = Red, r = pink).

**Drag & Drop ONE allele per Cross Box - Use Color Coding Red & Pink.**

P1      R      r      R      r

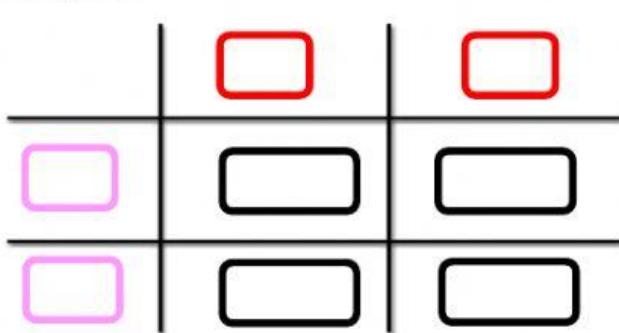
Cross:                              

P1      R      r      R      r

RR	Rr	rr

F1



Q1. What is the genotypes of these F1 offspring?

Q2. Give phenotype of the F1 offspring.